

**United States Court of Appeals
for the Federal Circuit**

MLC INTELLECTUAL PROPERTY, LLC,
Plaintiff-Appellant

v.

MICRON TECHNOLOGY, INC.,
Defendant-Appellee

2020-1413

Appeal from the United States District Court for the Northern District of California in No. 3:14-cv-03657-SI, Senior Judge Susan Y. Illston.

Decided: August 26, 2021

FABIO E. MARINO, Polsinelli PC, Palo Alto, CA, argued for plaintiff-appellant. Also represented by TERI HONG-PHUC NGUYEN.

RUFFIN B. CORDELL, Fish & Richardson PC, Washington, DC, argued for defendant-appellee. Also represented by MICHAEL JOHN BALLANCO, CHRISTOPHER DRYER, TIMOTHY W. RIFFE, ROBERT ANDREW SCHWENTKER, ADAM SHARTZER.

WILLIAM F. LEE, Wilmer Cutler Pickering Hale and Dorr LLP, Boston, MA, for amici curiae Apple Inc., Dell

Inc., HP Inc., Intel Corporation. Also represented by BENJAMIN NOAH ERNST, MARK CHRISTOPHER FLEMING, LAUREN B. FLETCHER.

ANDREW DUFRESNE, Perkins Coie LLP, Madison, WI, for amici curiae Computer & Communications Industry Association, High Tech Inventors Alliance. Also represented by THOMAS ANDREW CULBERT, THERESA H. NGUYEN, Seattle, WA.

PHILLIP R. MALONE, Juelsgaard Intellectual Property and Innovation Clinic, Mills Legal Clinic, Stanford Law School, Stanford, CA, for amici curiae Engine Advocacy, The R Street Institute. Also represented by ABIGAIL A. RIVES, Engine Advocacy, Washington, DC. Amicus curiae The R Street Institute also represented by CHARLES DUAN, R Street Institute, Washington, DC.

Before NEWMAN, REYNA, and STOLL, *Circuit Judges*.

STOLL, *Circuit Judge*.

MLC Intellectual Property, LLC seeks interlocutory review of the United States District Court for the Northern District of California's orders excluding certain opinions of MLC's damages expert. For the reasons that follow, we affirm the district court's orders precluding MLC's damages expert from characterizing certain license agreements as reflecting a 0.25% royalty, opining on a reasonable royalty rate when MLC failed to produce key documents and information directed to its damages theory when requested prior to expert discovery, and opining on the royalty base and royalty rate where the expert failed to apportion for non-patented features.

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BACKGROUND

I

MLC sued Micron for infringing certain claims of U.S. Patent No. 5,764,571. The '571 patent, titled "Electrically Alterable Non-Volatile Memory with N-bits Per Cell," describes methods of programming multi-level cells. The specification discloses that, in conventional single-bit per cell memory devices, a memory cell assumes either an "on" state or an "off" state, defining one bit of information. Thus, a memory device that stores n-bits of data requires n separate memory cells, meaning that the number of memory cells must increase on a one-for-one basis with the number of bits to be stored.

The specification explains that an alternative approach to the single-bit per cell approach involves storing multiple-bits of data in a single memory cell, known as a multi-level cell. Prior approaches to multiple-bit per cell non-volatile memory have only used mask programmable read-only-memories (ROMs). This may be accomplished by varying the channel width or length of the memory cell "such that 2^n different conductivity values are obtained which correspond to 2^n different states corresponding to n-bits of data which can be stored on a single memory cell." '571 patent col. 1 ll. 45–49. Another conventional ROM approach involves varying an ion implant for the threshold voltage "such that the memory cell will have 2^n different voltage thresholds (V_t) corresponding to 2^n different states corresponding to n-bits of data which can be stored on a single memory cell." *Id.* at col. 1 ll. 49–54. In these multi-bit ROM approaches, the 2^n conductivity level must be determined during the manufacturing process, and the memory can only be used for one data pattern. Thus, each time a data pattern needs to be changed, a new batch of semiconductor wafers must be processed.

Conventional alterable multiple-bit per cell memories can store multiple levels of charge on a capacitive storage

element, such as dynamic random access memory (DRAM) or charge-coupled devices (CCDs). These approaches use volatile storage by providing “ 2^n different volatile charge levels on a capacitor to define 2^n different states corresponding to n -bits of data per memory cell.” *Id.* at col. 2 ll. 22–25. The problem with volatile storage is that a cell loses its data whenever power is removed, and cells must be periodically refreshed as they can lose charge over time.

The '571 patent purports to solve these problems in ROM and DRAM multiple-bit memories by disclosing a multi-bit semiconductor memory cell that has the non-volatile characteristics of ROM, as well as the electrically alterable characteristics of a multi-bit per cell DRAM. Particularly, the specification describes a multi-bit per cell electrically alterable non-volatile memory (EANVM) where each cell stores information in K^n memory states, “where K is a base of a predetermined number system, n is a number of bits stored per cell, and $K^n > 2$.” *Id.* at col. 2 ll. 58–61. Moreover, the '571 patent discloses programming the multi-level cell to a state corresponding to the input information and comparing the memory state of the multi-level cell with the input information, where the input information corresponds to a reference voltage.

On appeal, MLC only asserts claim 30 of the '571 patent against Micron, which reads as follows:

30. Apparatus for programming an electrically alterable non-volatile memory cell having more than two predetermined memory states, comprising:

a selecting device which selects one of a plurality of reference signals in accordance with information indicating a memory state to which said memory cell is to be programmed, each reference signal corresponding to a different memory state of said memory cell;

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a programming signal source to apply a programming signal to said memory cell; and

a control device to control the application of said programming signal to said memory cell based on the selected reference signal.

Id. at col. 15 ll. 10–22. The scope of claim 30 is narrower than the scope of the other independent claims in the '571 patent. While the other independent claims are directed to a “multi-level memory device” or a “multi-level memory apparatus,” claim 30 is more narrowly directed to an “[a]pparatus for programming an electrically alterable non-volatile memory cell having more than two predetermined memory states.” *Compare, e.g., id.* at col. 12 l. 6, *with id.* at col. 15 ll. 10–12.

II

Micron manufactures and sells NAND flash wafers and packages. Flash memory is a type of non-volatile memory, and NAND flash memory is a low-cost, high-density memory option. As such, NAND flash memory is considered the standard for storage-related applications. Both Micron’s NAND flash wafer, or bare die assembly, and NAND flash package may include multiple dies. Included in each die is a memory array, which may comprise both single-level and multi-level memory cells. Micron assembles and sells its products in a variety of ways, including individually as wafers or in completed assemblies as packages. Wafers may be used to make NAND flash packages, while flash packages encapsulate sorted functional dies that are connected to external leads in a plastic package. Micron contends that while a wafer having a single die is the smallest saleable patent practicing unit, there are numerous other non-infringing features in Micron’s die, including “error correction hardware,” “data clocking hardware,” “addressing hardware,” “cache registers,” and “digital to analog converters.” J.A. 1242.

III

In his expert report, MLC's damages expert, Michael Milani, first provided his understanding of the technology relevant to the '571 patent. He explained that, based on his discussion with MLC's technical expert, Dr. Jack Lee, he understood that the '571 patent relates to technology that enables multi-level cell and triple-level cell flash memory.

Mr. Milani next addressed the flash memory market as a whole, explaining that as the market became more saturated, production in the market shifted to NAND flash memory devices. Mr. Milani opined that by 2006, the NAND flash market had become a commodity market, with competitors mainly competing on price.

Mr. Milani next explained that MLC was formed in 2006 by Jerry Banks and Robert Hinkley. In 1997, Mr. Banks assigned to BTG International, Inc. the rights to a sizeable patent portfolio (the "MLCIP Patent Portfolio"), which included the '571 patent among forty other patents. BTG subsequently granted non-exclusive licenses to practice the MLCIP Patent Portfolio to Renesas Electronics Corporation in November 2006, Hynix Semiconductor Inc. in April 2007, and Toshiba Corporation in April 2007. After BTG sued Samsung Electronics Co. for infringement of certain patents in the MLCIP Patent Portfolio, BTG and Samsung entered into a settlement and license agreement in December 2010. MLC reacquired the rights to the MLCIP Patent Portfolio in 2012.

With this background, Mr. Milani attempted to reconstruct the hypothetical negotiation between MLC and Micron. Mr. Milani began by opining that the hypothetical negotiation date occurred in the fourth quarter of 2006, around the time that Micron first began selling the accused devices. He further opined that the compensation period began on August 12, 2008, six years prior to the filing of

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the complaint, and continued through the expiration of the '571 patent on June 9, 2015.

Turning next to the royalty base, Mr. Milani opined on two separate approaches for determining the royalty base: (1) a comparable license approach and (2) the smallest saleable patent practicing unit (SSPPU) approach. As for the comparable license approach, Mr. Milani included all of the revenue associated with the accused products, reasoning that the royalty rate associated with the comparable license agreements already apportioned for other components in those products. As to the SSPPU approach, Mr. Milani began with the premise that the SSPPU is a bare die. Mr. Milani did not apportion the revenue from sales of a bare die or wafer. For sales of a non-SSPPU product, Mr. Milani apportioned the revenue by limiting the cost of each non-SSPPU product to the average selling price of each die. Thus, Mr. Milani ultimately applied an apportionment factor of approximately 87.4% of the total accused product revenue for the SSPPU approach.

Mr. Milani next considered each of the factors set out in *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), to determine an appropriate royalty rate. As to the first factor—"royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty," *id.*—Mr. Milani considered BTG's license agreements with Hynix and Toshiba to be the most relevant license agreements to consider in a hypothetical negotiation. Mr. Milani acknowledged that the Hynix license agreement required a lump sum of \$21 million for the entire MLCIP Patent Portfolio rather than specifying a running royalty, but nonetheless relied on a "most-favored customer" provision in the license to derive a royalty rate. The "most favored customer" provision states:

In the event that BTG grants a license under the Licensed Patents after the Effective Date, other

than a license granted in settlement of litigation, in which the royalty is less than 0.25%, then as its sole remedy, Hynix's future payments (if any) shall be reduced so that Hynix, in total pays not more than 90% of the royalty rate paid by the new licensee.

J.A. 1084. Mr. Milani explained that he considered the 0.25% royalty rate called for in this provision “to reflect a relevant consideration for evaluating a reasonable royalty and underst[ood] *that rate was applied to Hynix worldwide sales.*” J.A. 906 (emphasis added). Turning to the Toshiba license agreement, Mr. Milani acknowledged that Toshiba paid BTG \$25 million, but opined that, “given the most favored customer provision in the Hynix Agreement, and the fact both agreements were executed on the same day, it's reasonable to presume BTG considered the royalty rate in the Toshiba Agreement to reflect a running royalty that is at least equal to the rate reflected by the Hynix Agreement.” J.A. 907.

As to the third factor—“[t]he nature and scope of the license, as exclusive or non-exclusive; or as restricted or non-restricted in terms of territory or with respect to whom the manufactured product may be sold,” *Georgia-Pacific*, 318 F. Supp. at 1120—Mr. Milani determined that, because the Hynix agreement was based upon worldwide shipments, the “0.25% royalty rate reflected within the Hynix agreement” was a discounted royalty rate to account for the fact that the MLCIP Patent Portfolio was predominantly made up of U.S. rights. J.A. 913. Specifically, Mr. Milani relied on testimony that the U.S. sales reflected only a third of a licensee's total shipments to determine that the proper rate to apply to U.S. sales in this case would be 0.75%. Accordingly, Mr. Milani concluded that “the Hynix Agreement suggests a royalty rate of 0.75% is the proper rate to consider in connection with determining a reasonable royalty in a hypothetical negotiation.” *Id.*

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Considering the seventh factor—“[t]he duration of the patent and the term of the license,” *Georgia-Pacific*, 318 F. Supp. at 1120—Mr. Milani recognized that the Hynix agreement would run from April 11, 2007, to the expiration of the ’571 patent, June 9, 2015, or approximately eight years. Nonetheless, he determined that this factor was neutral “relative to the rate reflected in the Hynix agreement.” J.A. 915.

Mr. Milani also addressed factors nine and ten—“[t]he utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results” and “[t]he nature of the patented invention; the character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the invention,” *Georgia-Pacific*, 318 F. Supp. at 1120. In particular, Mr. Milani explained that, in his view, “the features and benefits of the ’571 [p]atent and the existence or acceptability of potential non-infringing alternatives would have been implicitly accounted for in the negotiation between Hynix and BTG.” J.A. 919.

Considering the twelfth factor—“[t]he portion of the profit or of the selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions,” *Georgia-Pacific*, 318 F. Supp. at 1120—Mr. Milani again stated that “the Hynix Agreement reflects a 0.25% royalty,” J.A. 921, and identified extrinsic evidence to support his contention that the Hynix agreement reflected a 0.25% royalty rate. Specifically, Mr. Milani relied on (1) a BTG “Briefing Paper” summarizing negotiations with Samsung and stating that the parties discussed a 0.25% royalty rate; (2) a BTG letter offering to license the MLCIP Patent Portfolio to STMicroelectronics, Inc. at a 0.25% royalty rate; (3) a BTG letter offering to license the MLCIP Patent Portfolio to Micron at a 0.25% royalty rate; and (4) a BTG memorandum prepared during negotiations with Acacia Patent

Acquisition LLC, which indicated that the Toshiba and Hynix agreements used an effective royalty rate of 0.25%.

As to the thirteenth factor—“[t]he portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer,” *Georgia-Pacific*, 318 F. Supp. at 1120—Mr. Milani explained that he believed it reasonable to presume that at least fifty percent of the licensing value of the MLCIP Patent Portfolio was attributable to the ’571 patent, and so he adjusted the 0.75% royalty to 0.375%. Mr. Milani relied on testimony from Dr. Lee, who stated that “the vast majority of the technical value of the MLCIP portfolio is attributable to the ’571 patent,” J.A. 2194, notwithstanding the fact that the MLCIP Patent Portfolio consisted of forty-one patent assets, including twenty-eight granted U.S. Patents, two U.S. Patent Applications, ten foreign granted patents, and one foreign patent application.

Considering the fifteenth factor—“[t]he amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement,” *Georgia-Pacific*, 318 F. Supp. at 1120—Mr. Milani applied the royalty rate of 0.375% to the royalty bases calculated under the comparable licensing approach and the SSPPU approach, arriving at lump sum payments of \$70,207,876 and \$63,142,053, respectively.

IV

Micron filed a motion in limine to preclude Mr. Milani from mischaracterizing the Hynix and Toshiba agreements as reflecting a 0.25% royalty rate. In addition, Micron moved to strike portions of Mr. Milani’s expert report under Rule 37 of the Federal Rules of Civil Procedure as being based on facts, evidence, and theories that MLC disclosed

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for the first time in Mr. Milani's expert report. Micron had asked for MLC's damages theories—as well as any facts, evidence, and testimony regarding any applicable royalty rate—during fact discovery in its Interrogatory Nos. 6 and 22 and during a Rule 30(b)(6) deposition of a corporate designee. Finally, Micron filed a *Daubert* motion, seeking to exclude Mr. Milani's reasonable royalty opinion for failure to apportion out the value of non-patented features. The district court granted all three motions.

First, the district court granted in part Micron's motion in limine, holding that “[Mr.] Milani may not testify that the Hynix and Toshiba agreements contain or ‘reflect’ specific royalty rates because the documents speak for themselves and neither provides for an applicable royalty rate.” *MLC Intell. Prop., LLC v. Micron Tech., Inc. (MLC I)*, No. 14-CV-03657, 2019 WL 2863585, at *13 (N.D. Cal. July 2, 2019). The court reasoned that Mr. Milani's “testimony about the Hynix and Toshiba licenses containing a 0.25% royalty rate is not ‘based on sufficient facts or data’ and is not ‘the product of reliable principles and methods.’” *Id.* (quoting Fed. R. Evid. 702). The district court rejected Mr. Milani's reliance on the “most favored customer” provision to establish that the Hynix and Toshiba agreements reflected a 0.25% royalty rate. *Id.* The court reasoned that the most favored customer provision did not state that the 0.25% royalty rate was applied to calculate the lump sum payment in either the Hynix or Toshiba license; nor did the licenses provide any insight as to how the lump sum payments were actually calculated. *Id.* The district court also noted that had the lump sum payments been calculated based on the actual term of the license (2007–2017), “the effective royalty rate would be less than 0.25%.” *Id.*

Second, the district court granted in part Micron's motion to strike portions of Mr. Milani's expert report under Rule 37(c)(1). *MLC Intell. Prop., LLC v. Micron Tech., Inc. (MLC II)*, No. 14-CV-03657 (N.D. Cal. July 12, 2019), ECF No. 672 (incorporating its reasoning in *MLC I*, 2019 WL

2863585, at *14–15). The court concluded that “MLC never disclosed the factual underpinnings of its claim that the Hynix and Toshiba licenses ‘reflect’ a 0.25% royalty rate, and that pursuant to Rule 37(c)(1), this failure is a separate and independent basis for excluding evidence and argument that those licenses contain such a rate.” *MLC I*, 2019 WL 2863585, at *14. The court further held that the extrinsic evidence relied on by Mr. Milani to opine that the Hynix and Toshiba licenses reflect a 0.25% royalty rate “was never disclosed by MLC and thus MLC may not rely on this evidence to assert that the Hynix and Toshiba licenses ‘reflect’ a 0.25% rate.” *Id.* at *15.

Finally, the district court granted Micron’s *Daubert* motion to exclude the expert testimony of Mr. Milani regarding the royalty base. *MLC Intell. Prop., LLC v. Micron Tech., Inc. (MLC III)*, No. 14-CV-03657, 2019 WL 3070567, at *1 (N.D. Cal. July 12, 2019). The district court initially noted that MLC defended Mr. Milani’s comparable license approach and his SSPPU approach to calculating the royalty base by arguing that the royalty rate from the Hynix license already addressed apportionment and thus apportionment was accounted for in the 0.25% royalty rate. *Id.* at *2. The district court determined that there was “no evidence regarding the Hynix agreement that supports [Mr.] Milani’s opinion that a specific royalty rate derived from the Hynix agreement already accounts for apportionment of non-patented features in Micron’s accused products and thus can be applied to all the revenue for Micron’s accused products.” *Id.* at *3. The district court based its conclusion in part on the fact that the Hynix agreement did not actually contain a royalty rate and there was no explanation as to how the lump sum in the Hynix agreement was determined. *Id.* at *2. Notably, it found relevant that Mr. Milani failed to compare Micron’s accused products to the licensed Hynix products, especially in view of the fact that the Hynix agreement covered worldwide rights to forty-one patents for all of the Hynix products. *Id.* As to

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the SSPPU approach, the district court additionally criticized Mr. Milani's approach because he failed to apportion for non-infringing features, such as "error-correction software and implementation of copy-back technology." *Id.* at *3. The court held that Mr. Milani's failure to apportion for these non-patented technologies rendered his analysis unreliable and excludable. *Id.*

Thereafter, the district court certified the preceding three damages orders for interlocutory appeal pursuant to 28 U.S.C. § 1292(b). *MLC Intell. Prop., LLC v. Micron Tech., Inc. (MLC IV)*, No. 14-CV-03657, 2019 WL 5269014, at *5 (N.D. Cal. Oct. 17, 2019). We granted MLC's petition for permission to appeal. *MLC Intell. Prop., LLC v. Micron Tech., Inc. (MLC V)*, 794 F. App'x 951, 953 (Fed. Cir. 2020). We have jurisdiction under 28 U.S.C. § 1292(b).

DISCUSSION

"When reviewing damages in patent cases, we apply regional circuit law to procedural issues and Federal Circuit law to substantive and procedural issues pertaining to patent law." *Whitserve, LLC v. Comput. Packages, Inc.*, 694 F.3d 10, 26 (Fed. Cir. 2012) (quoting *Wordtech Sys., Inc. v. Integrated Networks Sols., Inc.*, 609 F.3d 1308, 1318 (Fed. Cir. 2010)). The Ninth Circuit reviews "a district court's evidentiary rulings, such as its decisions to exclude expert testimony and to impose discovery sanctions, for an abuse of discretion." *Ollier v. Sweetwater Union High Sch. Dist.*, 768 F.3d 843, 859 (9th Cir. 2014); *see also Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 141 (1997) ("[A]buse of discretion is the proper standard of review of a district court's evidentiary rulings.").

On appeal, MLC challenges all three of the district court's exclusion orders. We address each in turn below.

I

MLC first argues that the district court erred in excluding Mr. Milani's opinion that the Hynix and Toshiba

agreements reflect a 0.25% royalty rate. We are not persuaded. As a gatekeeper, the district judge was required to “ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.” *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 589 (1993). Indeed, the Federal Rules of Evidence “leave in place the ‘gatekeeper’ role of the trial judge in screening such evidence.” *Gen. Elec.*, 522 U.S. at 142. In this case, the district court properly determined that Mr. Milani’s “testimony about the Hynix and Toshiba licenses containing a 0.25% royalty rate [was] not ‘based on sufficient facts or data’ and [was] not ‘the product of reliable principles and methods.’”¹ *MLC I*, 2019 WL 2863585, at *13 (quoting Fed. R. Evid. 702).

We see no abuse of discretion in the district court’s exclusion of Mr. Milani’s testimony that the Hynix and Toshiba agreements contain or reflect a specific royalty rate of 0.25%. Instead of resting on an accepted scientific theory or technique, Mr. Milani’s testimony that he understood the Hynix and Toshiba licenses to use a 0.25% royalty is not sufficiently tethered to the evidence presented. Neither the Hynix agreement nor the Toshiba agreement discloses any royalty rate. Rather than deriving a rate from the lump-sum payments and projected sales, Mr. Milani’s testimony rests on an inference from the most favored customer clause that goes well beyond what the clause implies and is incompatible with the Hynix agreement as a whole. As the district court pointed out, if a 0.25% royalty had

¹ MLC also argues that the district court erred in excluding Mr. Milani’s expert testimony under the parol evidence rule, an alternative ground addressed by the district court in a footnote. *See MLC I*, 2019 WL 2863585, at *13 n.14. Because we affirm on the primary ground identified by the district court, we do not reach the parol evidence issue.

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been applied to forecasts of revenue for the term of the licenses (2007–2017), the lump-sum amounts would have been far greater than \$21 and \$25 million. *See MLC I*, 2019 WL 2863585, at *13.

We reached a similar conclusion based on similar facts in *Whitserve*, where we determined that “multiple errors in [the expert’s] royalty rate calculation cause[d] his ultimate opinion regarding a reasonable royalty rate to be speculative.” 694 F.3d at 29. In that case, the expert identified two lump-sum payments in the range of approximately \$2–3 million as evidence to support an increased royalty rate of 19%. *Id.* at 30. Because the expert offered no testimony as to how those lump-sum payments could be converted to any royalty rate, let alone a 19% royalty rate, we affirmed the district court’s determination that the lump-sum agreements did not support a 19% running royalty. *Id.* The same rationale supports the district court’s determination here.

We addressed the fundamental differences between lump-sum agreements and running-royalty agreements in *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301 (Fed. Cir. 2009). In *Lucent*, we explained that, “[f]or a jury to use a running-royalty agreement as a basis to award lump-sum damages . . . , some basis for comparison must exist in the evidence presented to the jury.” *Id.* at 1330. *Lucent* cited four running-royalty licenses to support a lump-sum damages award. *Id.* at 1329. Because *Lucent* provided almost no testimony for the jury to recalculate the value of the royalty agreements to arrive at the lump-sum damages award, we determined that the running royalties disclosed in the agreements did not support the award. *Id.* at 1330. This case involves a similar problem, though in the mirror-image situation where lump-sum agreements are being asserted as a basis to infer a rate for running royalty. Because Mr. Milani did not provide mathematical analysis to derive the 0.25% royalty rate from the lump-sum payments in the Hynix and Toshiba licenses, the

district court could reasonably determine that those licenses cannot support testimony that the lump-sum payments were, in fact, based on that royalty rate.

We acknowledge that Mr. Milani's testimony may well have been proper had he merely asserted that he "consider[ed] the 0.25% royalty rate called for in the most favored customer provision to reflect a relevant consideration for evaluating a reasonable royalty." J.A. 906. But he crossed the line when he stated that he "under[stood] that [the 0.25%] rate was applied to Hynix worldwide sales" in calculating the lump-sum license payment of \$21 million. *Id.* As the expert failed to do in *Whitserve*, Mr. Milani offered no testimony as to how the \$21 million lump-sum payment could be converted to any royalty rate, let alone a 0.25% royalty rate. *See* 694 F.3d at 30. Nonetheless, Mr. Milani repeatedly took the unsupported position that the 0.25% royalty rate represented the lump sum amounts in both agreements. J.A. 921 (the "Hynix Agreement reflects a 0.25% royalty applied to worldwide shipments"); J.A. 926 ("I also recognize the lump-sum payments included in the BTG license agreements reflect the application of the 0.25% royalty rate reflected in the agreements to a royalty base comprised of estimated worldwide sales."); J.A. 1145 (Milani Dep. 146:21–24) ("I would tell the jury that when this agreement was negotiated, that the parties to the agreement considered 0.25 percent to be the effective royalty rate to which they were agreeing."). Accordingly, we agree with the district court that Mr. Milani's characterization of the Hynix and Toshiba licenses reflecting a 0.25% royalty rate is not reliable and therefore affirm the district court's exclusion of his opinion.

II

We next turn to the district court's order striking portions of Mr. Milani's expert report under Rule 37(c)(1) of the Federal Rules of Civil Procedure. Under Rule 37(c)(1), when "a party fails to provide information or identify a

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witness as required by Rule 26(a) or (e), the party is not allowed to use that information or witness to supply evidence on a motion, at a hearing, or at a trial, unless the failure was substantially justified or is harmless.” Here, the district court explained that MLC failed to disclose information required by Rule 26(e), including what it believed was an appropriate royalty rate, that it believed the Hynix and Toshiba licenses reflect a 0.25% royalty rate, and the extrinsic evidence on which Mr. Milani relied in support of his belief. *MLC I*, 2019 WL 2863585, at *14. The court held that Mr. Milani could not opine that the licenses reflected a 0.25% royalty rate where MLC had failed to disclose in discovery all of the evidence that Mr. Milani relied on in support of that opinion.

On appeal, MLC primarily argues that it was not required to disclose these specific facts and documents supporting its damages theory during fact discovery because it ultimately disclosed them during expert discovery. Specifically, MLC reasons that it provided adequate responses to Micron’s Interrogatory Nos. 6 and 22, and that anything more would have required it to disclose material designated for expert discovery.

Interrogatory No. 6 asked MLC to describe “the factual and legal basis and supporting evidence for the relief” sought by MLC, “including but not limited to [MLC’s] contention that [it is] entitled to damages (e.g., a reasonable royalty).” J.A. 2618. Besides boilerplate objections, MLC responded that its “calculation of damages will also be informed by, at least, the following documents,” and then provided a list of ninety-three Bates-numbered documents. J.A. 2620. In a second supplemental response, MLC added that the “royalty rate will be based on at least the *Georgia-Pacific* factors, and will include but not [be] limited to consideration of relevant license agreements for the patented technology, including those identified in MLC’s prior response, as well as any prior negotiations between the parties regarding the patented technology.” J.A. 2621–22.

Interrogatory No. 22 asked MLC to “[i]dentify all facts, evidence, and testimony regarding any applicable royalty rates that [MLC] intend[s] to rely upon at trial and describe in complete detail why those royalty rates are applicable.” J.A. 1186. MLC responded that the “royalty rate will be based on at least the *Georgia-Pacific* factors, and will include but not [be] limited to consideration of license agreements for the patented technology, including but not limited to” seven bates-numbered documents. J.A. 1187.

In its order granting Micron’s motion, the district court noted that MLC’s response to Interrogatory No. 6 failed to identify the Hynix license, the Toshiba license, its reasonable-royalty theory, and any of the extrinsic evidence relied on by Mr. Milani to support his opinion that both the Hynix and Toshiba licenses reflect a 0.25% royalty rate. *MLC I*, 2019 WL 2863585, at *8. Likewise, the district court noted that MLC’s response to Interrogatory No. 22 failed to identify the Toshiba license, a specific royalty rate, that it believed the Hynix or Toshiba licenses supported a 0.25% (or 0.75%) royalty rate, and any of the extrinsic evidence relied on by Mr. Milani to support his opinion that the Hynix and Toshiba licenses reflect a 0.25% royalty. *Id.* at *9. The district court also noted that, when asked about the royalty rate used in the Toshiba and Hynix agreements, MLC’s 30(b)(6) corporate designee testified that MLC had no understanding of what royalty rate was in the agreements. *Id.* at *9–11.

On appeal, MLC asserts that it did identify both the Hynix and Toshiba licenses, as well as several of the extrinsic documents Mr. Milani relied on. MLC explains that it just used different Bates numbers than the ones referenced by Mr. Milani in his report. Micron does not challenge that MLC identified both the Hynix and Toshiba licenses. Instead, it asserts that MLC failed to identify a number of other documents, including the extrinsic evidence relied on by Mr. Milani to show that the Hynix agreement reflects a 0.25% royalty rate—notably, the documents

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related to BTG's negotiations with Samsung, STMicroelectronics, and Acacia. MLC concedes that these documents were not disclosed in its responses to Interrogatory Nos. 6 and 22, but asserts that at least some of the documents were disclosed in response to other interrogatories.

The Ninth Circuit affords district courts "particularly wide latitude" in applying Rule 37(c)(1) to exclude information that a party failed to provide under Rule 26. *Ingenco Holdings, LLC v. Ace Am. Ins. Co.*, 921 F.3d 803, 821 (9th Cir. 2019). While we acknowledge the district court's factual error in finding that MLC did not identify the Toshiba and Hynix licenses, we nonetheless determine that the district court did not abuse its discretion in finding that MLC did not properly disclose its claim that the Hynix and Toshiba licenses reflect a 0.25% rate, as well as the extrinsic documents relied on by Mr. Milani to show that the Hynix agreement reflects a 0.25% royalty rate. The district court acted well within its discretion when it excluded Mr. Milani's opinion that the Hynix and Toshiba licenses reflect a 0.25% rate and the extrinsic documents under Rule 37(c)(1) as a result of MLC's failure to supplement its discovery responses to provide this information. As the district court emphasized, because the Hynix and Toshiba licenses are lump-sum agreements that do not contain specific royalty rates, absent a disclosure by MLC, Micron would have no way of knowing that Mr. Milani would opine that the agreements reflect a 0.25% royalty rate, particularly given the Rule 30(b)(6) testimony indicating that MLC did not know the royalty rate in the Hynix and Toshiba agreements. *Id.* Further, we agree with the district court that, had MLC disclosed this information, Micron could have sought fact discovery regarding this contention. Finally, it is worth noting that the Hynix and Toshiba agreements and the extrinsic evidence were produced by MLC and in its possession from the outset of the case, largely mitigating any timing and fairness concerns

preventing MLC from knowing its contentions about a reasonable royalty until after close of fact discovery.

We find unpersuasive MLC's argument that, under Rule 26(a)(2) of the Federal Rules of Civil Procedure—which governs the disclosure of expert testimony—it was outside of the district court's discretion to require MLC to identify which documents Mr. Milani would be using, how Mr. Milani would interpret those documents, and how Mr. Milani would use them to derive his reasonable royalty opinion. According to MLC, all that the discovery rules require is that those theories be developed in the expert's report. We reject this narrow reading of Rule 26, as well as the implied narrow reading of the district court's discretion to interpret discovery rules. Rule 26 explains that the disclosures required under section (a)(2) are in "*addition* to the disclosures required by Rule 26(a)(1)." Fed. R. Civ. P. 26(a)(2) (emphasis added). And Rule 26(a)(1)(A)(iii) requires parties seeking damages to provide in their initial disclosures "a computation of each category of damages" as well as "the documents or other evidentiary material, unless privileged or protected from disclosure, on which each computation is based."²

² The Northern District of California has previously explained that, with regard to reasonable royalty, though Rule 26(a) "does not require a full exposition of the type required at trial or in an expert report," it "does expressly require an initial computation and disclosure of the evidence that will be relied on to the full extent the patent plaintiff could or should know of it." *Brandywine Commc'ns Techs., LLC v. Cisco Sys., Inc.*, No. C 12-01669, 2012 WL 5504036, at *2 (N.D. Cal. Nov. 13, 2012). Thus, to the extent possible, this initial disclosure should include a claimed royalty rate and the evidence that supports such a rate, "even though subsequent discovery may eventually warrant a modification of the calculation." *Id.*

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Thus, in our view, the district court was within its discretion in determining that, though MLC was not required to disclose its expert opinions during fact discovery, it was still required to disclose (1) its view that the Hynix and Toshiba license agreements reflect a 0.25% royalty rate and (2) the extrinsic evidence Mr. Milani relied on to support that view in response to Micron's reasonable requests for all facts, evidence, and testimony regarding any applicable royalty rates that MLC intended to rely on at trial. The Ninth Circuit has previously enforced sanctions for failing to timely disclose damages theories. In *Ingenco Holdings, LLC v. Ace American Insurance Co.*, the district court did not permit Ingenco "to rely upon any computation or evidence of their [damages claims] beyond that provided in their initial disclosures" for failing to produce these damages theories until the day before discovery cutoff at a Rule 30(b)(6) deposition. No. C13-543, 2016 WL 4703758, at *2, *5 (W.D. Wash. Sept. 7, 2016). The Ninth Circuit affirmed this exclusion, explaining that because Ingenco failed to respond to Ace's interrogatory requesting this damages information, and because Rule 26(a)(1)(A)(iii) requires timely disclosure of damages information, the district court properly excluded the damages information under Rule 37. *Ingenco*, 921 F.3d at 821–22; *see also Elliott v. Google, Inc.*, 860 F.3d 1151, 1161 (9th Cir. 2017) (affirming the district court's exclusion of evidence where the evidence was not properly disclosed during fact discovery); *Am. Cas. Co. of Reading, Pa. v. Baker*, 22 F.3d 880, 886 n.3 (9th Cir. 1994) (explaining that "the district court was within its discretion by precluding expert testimony as a sanction for the [] failure to seasonably supplement its interrogatory responses"); *Silvia v. MCI Commc'ns Servs., Inc.*, 787 F. App'x 399, 400 (9th Cir. 2019) (affirming the district court's exclusion of Silvia's damages theory for failing to timely supplement or correct her disclosures and discovery responses under Rule 26(e)(1)(A)).

MLC's argument that it need not disclose factual underpinnings and evidence underlying its damages theory prior to expert discovery undermines a district court's discretion to encourage early discovery. District courts have the discretion to encourage parties to provide discovery of damages theories prior to expert discovery. Doing so promotes judicial efficiency, informs settlement discussions, and helps parties determine the resources that will be devoted to a case based on its potential value. Consistent with these goals, several district courts have adopted local rules requiring parties to provide this information early in the litigation. For example, the Northern District of California amended its local rules in 2017 to require each party asserting infringement to disclose its damages "theories of recovery, factual support for those theories, and computations of damages within each category," within fifty days after service of the invalidity contentions. U.S. Dist. Ct. N.D. Cal. Patent L.R. 3-8.³

MLC's argument also undermines Rule 33 of the Federal Rules of Civil Procedure. Rule 33 states that "[a]n interrogatory is not objectionable merely because it asks for an opinion or contention that relates to fact or the application or law to fact." Fed. R. Civ. P. 33. As we recognized in *Woods v. DeAngelo Marine Exhaust, Inc.*, contention interrogatories—like Interrogatory Nos. 6 and 22 here—"serve an important purpose in helping to discover facts supporting the theories of the parties. Answers to contention interrogatories also serve to narrow and sharpen the issues thereby confining discovery and simplifying trial preparation." 692 F.3d 1272, 1280 (Fed. Cir. 2012) (citing Fed. R. Civ. P. 33 advisory committee's note (1970 Amendment, Subdivision (b))). We have recognized that answers to contention interrogatories evolve over time as theories of

³ We note that the district court did not rely on the local rules in its Rule 37(c)(1) ruling in this case.

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liability, defense, and relief begin to take shape and that answers to those interrogatories may not come into focus until the end of discovery. *See Woods*, 692 F.3d at 1280 (citing *O2 Micro Int'l Ltd. v. Monolithic Power Sys., Inc.*, 467 F.3d 1355, 1365 (Fed. Cir. 2006)). But Rule 26(e) expressly requires that as theories mature and as the relevance of various items of evidence changes, responses to interrogatories, and particularly contention interrogatories, must be corrected or supplemented to reflect those changes.

Finally, we are unpersuaded by MLC's argument that the district court's order required MLC's corporate designee in the Rule 30(b)(6) deposition to divulge privileged information when asked about MLC's view of the royalty rate in the Hynix agreement. Likewise, we do not agree that the district court erred by requiring MLC to disclose privileged information in its interrogatory responses. In striking portions of Mr. Milani's expert opinion on reasonable royalty under Rule 37(c)(1), the district court explained that "Micron repeatedly asked MLC . . . for the factual basis of its reasonable royalty claim and about its reliance on the Hynix license in particular – and MLC consistently failed to disclose its contention that the Hynix license 'reflected' a 0.25% royalty rate that should be applied to this case." *MLC I*, 2019 WL 2863585, at *14.

A request for information regarding the factual basis of MLC's reasonable royalty claim does not seek privileged information. Attorney-client privilege "only protects disclosure of communications; it does not protect disclosure of the underlying facts" of those communications. *Upjohn Co. v. United States*, 449 U.S. 383, 395 (1981); *see also Murdoch v. Castro*, 609 F.3d 983, 995 (9th Cir. 2010) (explaining that a witness may be questioned "about the underlying facts" because "attorney-client privilege protects only a communication between an attorney and a client, not the facts that are communicated"); *Castaneda v. Burger King Corp.*, 259 F.R.D. 194, 197 (N.D. Cal. 2009) (explaining

that though documents may be privileged, “the facts contained within them may not be” and that attorney-client privilege does not protect the disclosure of underlying facts); accord *In re Pioneer Hi-Bred Int’l, Inc.*, 238 F.3d 1370, 1374 (Fed. Cir. 2001). That the Hynix and Toshiba licenses reflect a 0.25% rate, along with the statements in the extrinsic documents supporting this rate, are nothing more than facts underlying MLC’s damages theory. We therefore affirm the district court’s order striking portions of Mr. Milani’s expert opinion.

III

Finally, we affirm the district court’s grant of Micron’s *Daubert* motion to exclude Mr. Milani’s expert opinion on reasonable royalty for failure to apportion. We agree that Mr. Milani did not properly apportion either the royalty base or the royalty rate to account for the patented technology.⁴ We have repeatedly held that when the accused technology does not make up the whole of the accused product, apportionment is required. See, e.g., *Exmark Mfg. Co. Inc. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1348 (Fed. Cir. 2018). “[T]he ultimate combination of royalty base and royalty rate must reflect the value attributable to the infringing features of the product, and no more.” *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1309 (Fed. Cir. 2018) (alteration in original) (quoting *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014)). This is so even where the proposed royalty base is the smallest saleable patent practicing unit or SSPPU. *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1329 (Fed. Cir. 2014).

⁴ While we disagree with the district court to the extent it suggested that the only way to apportion is through the royalty base, Mr. Milani also did not apportion using the royalty rate.

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Here, the sole asserted claim is claim 30, which is directed to an “[a]pparatus for programming an electrically alterable non-volatile memory cell,” and the accused technology does not make up the whole of the accused die or wafer. Neither of Mr. Milani’s damages theories—comparable license or SSPPU—apportioned for the non-patented aspects of the accused dies or wafers. Accordingly, the district court did not abuse its discretion in granting Micron’s Daubert motion.

We turn first to Mr. Milani’s and MLC’s contention that because the licenses are “comparable,” there is de facto no need to apportion. *See* J.A. 893 n.195 (“In other words, the royalty rate associated with the comparable license agreements already apportions for other components and technologies included in the infringing product.”). We have previously approved the use of comparable licenses to account for apportionment. *See Bio-Rad Labs., Inc. v. 10X Genomics Inc.*, 967 F.3d 1353 (Fed. Cir. 2020); *Elbit Sys. Land & CAI Ltd. v. Hughes Network Sys., LLC*, 927 F.3d 1292 (Fed. Cir. 2019); *Commonwealth Sci. & Indus. Rsch. Org. v. Cisco Sys., Inc. (CSIRO)*, 809 F.3d 1295 (Fed. Cir. 2015). As we have explained, “[w]here the licenses employed are sufficiently comparable, this method is typically reliable because the parties are constrained by the market’s actual valuation of the patent.” *CSIRO*, 809 F.3d at 1303 (footnote omitted) (citing *Georgia-Pacific*, 318 F. Supp. at 1120). We reject the view that the Hynix and Toshiba agreements are comparable licenses. As the district court properly explained, “there is no evidence regarding the Hynix agreement that supports [Mr.] Milani’s opinion that a specific royalty rate derived from the Hynix agreement already accounts for apportionment of non-patented features” in this case. *MLC III*, 2019 WL 3070567, at *3.

We agree with the district court that the cases in which we have held that damages can be based on the terms of a comparable license that already values the patented

technology involve very different facts than those presented here. For example, in *CSIRO*, we held that the district court properly accounted for apportionment when it relied on proposed royalty rates from prior negotiations between the parties to the litigation involving the same patent and accused technology. 809 F.3d 1302–04. We explained that “the district court did not violate apportionment principles in employing a damages model that took account of the parties’ informal negotiations with respect to the end product.” *Id.* at 1304. We expanded on this analysis in *Elbit*. There, we rejected Hughes’s argument that Elbit’s damages evidence, and hence the jury award, was counter to our precedent on apportionment. *Elbit*, 927 F.3d at 1301. Elbit’s damages expert relied on a prior settlement agreement for slightly different technology to support his reasonable-royalty determination. *Id.* at 1300. Like MLC’s expert, Elbit’s expert opined that apportionment “is essentially embedded in [the] comparable value” from the prior agreement. *Id.* at 1301 (alteration in original). Unlike MLC’s expert, however, Elbit’s expert appropriately accounted for the differences between the technology at issue in the settlement agreement and the accused technology. *Id.* (explaining that Elbit’s expert’s testimony “allowed the jury to find that the components at issue . . . were comparable to the components at issue” in the prior agreement). Likewise, in *Bio-Rad*, though Bio-Rad’s expert did not adjust the royalty rate of the comparable licenses, he did account for the differences between the accused technology and the licensed technology. 967 F.3d at 1377 (explaining that Bio-Rad’s expert “assess[ed] whether the importance of [the] technology to the particular license was similar to the hypothetical negotiation,” relying in part “on the reports, testimony, and conclusions of other witnesses”).

In this case, Mr. Milani provided no evidence or explanation for how the 0.25% royalty rate he derived from the Hynix agreement accounts for apportionment of Micron’s

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accused products. Specifically, unlike the expert in *Elbit*, Mr. Milani conducted no assessment of the licensed technology versus the accused technology to account for any differences. See 927 F.3d at 1300 (“[P]rior licenses or settlements need to be ‘sufficiently comparable’ for evidentiary purposes and any differences in circumstances must be soundly accounted for.” (quoting *VirnetX*, 767 F.3d at 1330)). Mr. Milani’s general characterization of the flash memory market as a whole as a commodity market does not satisfy this requirement of establishing that a license is, in fact, comparable. Moreover, unlike the agreement in *CSIRO*, the Hynix agreement is not a license for the same single patent. See 809 F.3d at 1298. To the contrary, the Hynix agreement granted a license to a portfolio of forty-one U.S. and international patents and patent applications, and only one of those forty-one patents is at issue in the hypothetical negotiation. For these reasons, we see no abuse of discretion in the district court’s determination that Mr. Milani’s comparable license theory does not properly apportion for the value of the patented technology.

We are also not persuaded by MLC’s argument that it need not further apportion beyond the single-component SSPPU because the asserted claims are directed to a memory device as a whole. Contrary to MLC’s suggestion in its briefing, claim 30 is the sole claim at issue in this appeal. Because claim 30 is an “[a]pparatus for programming an electrically alterable non-volatile memory cell having more than two predetermined memory states,” ’571 patent col. 15 ll. 10–12, it is not commensurate in scope with the SSPPU, which also contains “error correction hardware,” “data clocking hardware,” “addressing hardware,” “cache registers,” and “digital to analog converters.” J.A. 1242. Accordingly, we affirm the district court’s *Daubert* order excluding MLC’s expert testimony regarding a reasonable royalty for failure to apportion.

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CONCLUSION

We have considered MLC's remaining arguments and find them unpersuasive. For the foregoing reasons, we affirm the district court's orders excluding the reasonable royalty opinion of MLC's damages expert.

AFFIRMED